CLAIMS

1. A method to set up a voice over Internet Protocol communication between a mobile terminal (MT) and a second device (T2), said voice over Internet Protocol communication comprises an air interface between said mobile terminal (MT) and a base station (BS) being coupled via an access network and an Internet Protocol network to said second device (T2), **characterized** in that said method comprises a step of determining, according to predefined rules and conditions, during call set-up appropriate values for a plurality of parameters which are characterizing said voice over Internet Protocol communication in order to realize a desired trade-off between a predefined user quality of said voice over Internet Protocol communication and a predefined bandwidth efficiency.

2. The method according to claim 1, characterized in that said method further comprises a step of signaling at least part of said appropriate values to anyone of said mobile terminal (MT), said second device (T2), said de-jittering buffer (BUF) and said base station (BS) in order to be used during said set up of said voice over Internet Protocol communication.

3. The method according to claim 1, characterized in by comprising in said plurality of parameters any one of

a parameter of said air interface such as

a power budget to be used by any one of said mobile terminal and a said base station,

an air interface channel code to be used between said mobile terminal (MT) and said base station (BS) and;

an interleaving scheme to be used between said mobile terminal (MT) and said base station (BS) ;

a de-jittering delay introduced at a de-jittering buffer (BUF) being coupled between said base station (BS) and said second device (T2); and

a payload size of Internet Protocol packets to be transmitted between said mobile terminal (MT) and said second device (T2) during said voice over Internet Protocol communication.

5   4. The method according to any previous claim, characterized in by adapting said plurality of parameters also during said voice over Internet Protocol communication.

5. The method according to any previous claim, characterized in that
10   said air interface is a Universal Mobile Telecommunication System air interface.

6. The method according to any previous claim, characterized by implementing said second device (T2) by a voice over Internet Protocol gateway.
15

7. The method according to any one of claim 1 to claim 5, characterized by implementing said second device (T2) by an Internet Protocol terminal.

8. The method according to any previous claim, characterized in by
20   defining said trade-off according to predefined user preferences of a user desiring to set up said voice over Internet Protocol communication.

9. The method according to any previous claim, characterized in by defining said trade-off according to predefined operator preferences of an
25   operator exploiting said base station (BS).

10. The method according to any previous claim, characterized in that said step of determining said values for said plurality of parameters comprises
30   a) defining a plurality of mouth to ear delay versus distortion planes, each plane being associated to a combination of a value for said power budget and a value for said channel code; and

b) determining in each plane of said plurality of mouth to ear versus distortion planes a numerical model comprising constant-rating curves, each one of said constant rating curves reflecting a user quality of said voice over Internet Protocol communication;

5   c) determining working points, in each mouth to ear delay versus distortion plane, for each combination of a number of voice words and a choice for an interleaving scheme whereby a higher number of voice words reflects a higher bandwidth efficiency, said mouth to ear delay being determined in function of detailed information about the characteristics of the different transport stages a packet of said voice over Internet Protocol communication goes through, said distortion being determined in function of different packet loss probabilities; and providing thereby a total set of working points; and

      d) determining according to said desired trade-off an optimal working point out of said total set of working points, said optimal working point being located in a region of one of said mouth to ear delay versus distortion planes, that is bounded by a constant rating curve that reflects said predefined user quality and said optimal working point being associated according to said step c) to a predefined maximum number of voice words.

20   11. The method according to claim 10, characterized in that said constant-rating curves being determined according to the ITU-T E-model.

      12. Device (DEV) for use in a telecommunication network to set up a voice over Internet Protocol communication between a mobile terminal (MT) and a second device (T2), said voice over Internet communication comprises an air interface between said mobile terminal (MT) and a base station (BS) being coupled via an access network and an Internet Protocol network to said second device (T2), **characterized** in that said device comprises determining means (DET) to determine, according to predefined rules and conditions, during call set-up of said voice over Internet Protocol communication appropriate values for a predetermined plurality of parameters being characteristic for said voice over Internet Protocol communication in order to realize a desired trade-off

between a predefined user quality of said voice over Internet Protocol communication and a predefined bandwidth efficiency.

13. A device (DEV) according to claim 12, characterized in that said device (DEV) is comprised for at least partly in said mobile terminal (MT).

14. A device (DEV) according to claim 12, characterized in that said device (DEV) is comprised for at least partly in said base station (BS).

15. A device (DEV) according to claim 12, characterized in that said device (DEV) is comprised for at least partly in said second device (T2).

16. A telecommunication network, **characterized** in that said telecommunication network comprises a device according to any one of claim 12 to claim 15.